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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,419	02/10/2004	Shubh D. Sharma	056291-5348	2914

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EXAMINER	
STEELE, AMBER D	

ART UNIT	PAPER NUMBER
1639	

MAIL DATE	DELIVERY MODE
08/06/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/776,419	SHARMA ET AL.	
	Examiner	Art Unit	
	AMBER D. STEELE	1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 May 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *74 and 78-81* is/are pending in the application.

4a) Of the above claim(s) *79-81* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *74 and 78* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/5/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of the Claims

1. Claims 1-72 were originally filed on February 10, 2004.

The amendment to the claims received on September 28, 2007 canceled claims 1-72 and added new claims 73-81.

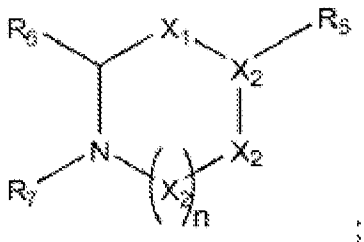
The amendment to the claims received on July 16, 2008 canceled claims 73 and 75-77 and amended claims 74 and 78-79.

Claims 74 and 78-81 are currently pending.

Claims 74 and 78 are currently under consideration.

Election/Restrictions

2. Applicants elected Group II:



;

wherein

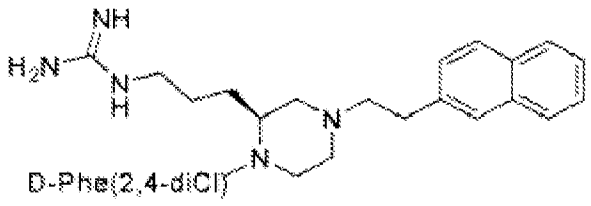
X_1 is CH_2;

X_2, at the 4-position (the position to which R_5 is attached), is N;

X_2, at the 5- and 6- positions, is CH_2; and

n is 1.

and the species of



Example 129

in the reply filed on January 2, 2008, is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

3. Claims 79-81 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on January 2, 2008.

Potential Rejoinder

4. Applicants elected the product, if the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper

restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder**. Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Priority

5. The present application (10/776,419, filed 2/10/2004) claims status as a continuation of PCT/US02/25575, international filing date 8/12/2002, which claims benefit of US Provisional Application 60/311404, filed 8/10/2001.

6. The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application). The disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

The disclosure of the prior-filed application, Application No. 60/311,404, fails to provide adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of this application. The formula genus as claimed in independent claim

74 is not disclosed in U.S. provisional application 60/311,404. Therefore, the presently claimed invention has a priority date of August 12, 2002.

Information Disclosure Statement

7. The information disclosure statements (IDS) submitted on May 5, 2009 is being considered by the examiner.

Withdrawn Rejections

8. The rejection of claims 74 and 78 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention regarding Pgl and Bpa are withdrawn in view of the claim amendments received on May 5, 2009 and applicants admission on record of what the acronyms represent.

Maintained Rejections

Claim Rejections - 35 USC § 112, First Paragraph

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claim 78 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. This is a scope of **enablement** rejection wherein the peptidomimetic is enabled, but the pharmaceutical composition is not enabled.

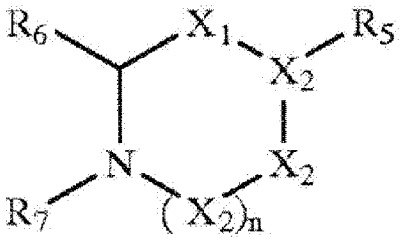
There are many factors be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether undue experiment is necessitated. These factors can include, but are not limited to:

(1) the breadth of the claims;
(2) the nature of the invention;
(3) the state of the prior art;
(4) the relative skill of those in the art;
(5) the level of predictability in the art;
(6) the amount of direction provided by the inventor;
(7) the existence of working examples; and
(8) the quantity of experimentation needed to make or use the invention based on the content of the disclosure.

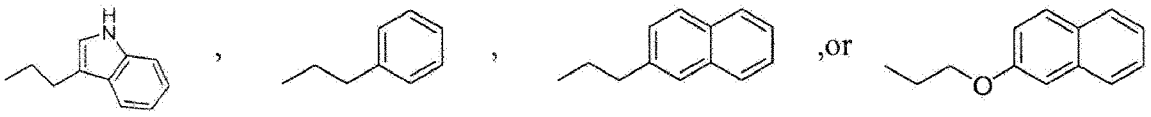
In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

The breadth of the claims and the nature of the invention: Claim 78 is drawn to a pharmaceutical composition comprising a peptidomimetic of claim 74, wherein the pharmaceutical composition has the intended use of administering to a subject for treatment (see MPEP § 2111.02).

Independent claim 74 is drawn to a peptidomimetic comprising the formula:



wherein X_1 is $(CH_2)_m$; X_2 bearing the R_5 substituent is N and all other X_2 are CH_2; R_5 is



; R_6 (see claim 74 for the Markush group); R_7 is R_9-R_8 (see claim 74 for R_8 and R_9 Markush groups); n is 1; and m is 1.

Thus, the claims encompass a great number of compounds wherein the various R groups may provide unique properties (e.g. one compound may treat obesity while another compound may treat sexual dysfunction, some compounds may not be pharmaceutically active, etc.). In addition, the breadth of use for the pharmaceutical composition as presently claimed encompasses treating any disease or condition.

The state of the prior art and the level of predictability in the art: The publication of Jones et al., Current Opinion in Pharmacology, 2003, Vol. 3, pp. 530-543, at p. 530 teaches that the development of peptides as drugs is problematic due to poor oral and tissue absorption, rapid proteolytic cleavage and poor shelf stability. Jones et al., at p. 538, discuss melanocortin-4 agonists and state that development of any MC4R agonist for anti-obesity therapy will depend upon separation of the anorexic effects from spontaneous erectile activity.

The level of one or ordinary skill: The level of skill would be high, most likely at the Ph.D. level. However, such persons of ordinary skill in this art, *given its unpredictability*, would have to engage in undue (non-routine) experimentation to carry out the invention as claimed.

The amount of direction provided by the inventor and the existence of working examples: Applicants have prophetically disclosed the in vivo testing of compounds. The specification does not disclose working embodiments.

The quantity of experimentation needed to make or use the invention based on the content of the disclosure: The claims contain broad recitations of compounds and state that the claimed invention may be used as pharmaceuticals. However, the instant specification does not provide to one skilled in the art those compounds that are active in the whole animal or patient. Applicants' pharmaceutical claim encompasses a vast number of compounds and therefore reach through to compounds not yet discovered. Note that there must be sufficient disclosure, either through illustrative examples or terminology, to teach those of ordinary skill how to make and use the invention as broadly as it is claimed. *In re Vaeck*, 947 F.2d 488, 496 and n.23, 20 USPQ2d 1438, 1455 and n.23 (Fed. Cir. 1991). Therefore, it is deemed that further research of an unpredictable nature (e.g. clinical trials to test all compounds, etc.) would be necessary to make or use the invention as claimed. Thus, due to the inadequacies of the instant disclosure, undue experimentation would be required of one of skill in the art to practice the full scope of the claimed invention.

Arguments and Response

11. Applicants' arguments directed to the rejection under 35 USC 112, first paragraph (scope of enablement), for claim 78 were considered but are not persuasive for the following reasons.

Applicants contend that the specification is enabling for the pharmaceutical composition of present claim 78 due to the disclosure of Example 3 (i.e. melanocortin receptor specificity) and Example 4 (i.e. agonist/antagonist status of select petidomimetics with respect to MC4-R). In addition, applicants provided four NPLs regarding the **potential** pharmaceutical uses of the compounds of the invention. Applicants also refer to application 12/130,299 (i.e. common assignee) wherein Example 17 shows in vivo data for a single compound.

Applicants' arguments are not convincing since Examples 3 and 4 are narrower in scope than the pharmaceutical composition of present claim 78 and Examples 3 and 4 utilize *in vitro* experiments (i.e. Example 3 utilizes mouse melanoma cell membranes and Example 4 utilizes HEK293 cells and mouse melanoma cells) which would not necessarily correlate to an *in vivo* use (i.e. pharmaceutical; references will be provided upon request of the applicants). See MPEP § 2164.02, section "Correlation: *In vitro*/*In vivo*".

Regarding the NPLs provided by applicants as evidence, the petidomimetics are narrower in scope than the present invention, Yang et al. refer to "administration of melanotan II (MTII), a cyclic melanocortin agonist, was found to induce weight loss in several different rodent models" via reference 57 (see section 3.1.3; i.e. Fan et al., 1997, Role of melanocortinergic neurons in feeding and the *agouti* obesity syndrome, Nature, 385(9): 165-168; provided for applications consideration; presently claimed peptidomimetics are not disclosed), Stark et al. also refer to Fan et al. via reference 19 (see page 860 particularly paragraph spanning the left and right columns), and Wikberg refers to a "selective MC_4 receptor antagonist HS014 induces overeating and severe obesity" (see section 3.3.4).

Regarding application 12/130,299, Example 17 is narrower in scope than the presently claimed pharmaceutical composition and 12/130,299 has a priority date of June 1, 2007 (i.e. enablement for entire scope of the claim must be present at the time of filing). While evidence regarding enablement may be presented after the filing date, the scope of the claimed invention and the after filing evidence must have the same scope (see MPEP § 2164.05).

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

13. Claims 74 and 78 are rejected under 35 U.S.C. 102(e) as being anticipated by Mazur et al. WO 02/085925 (priority date of April 25, 2001; see SCORE for structure search; provided by applicants in the IDS).

For present claims 74 and 78, Mazur et al. teach MC-3/MC-4 receptor ligand peptidomimetics and pharmaceutical compositions thereof (please refer to the entire specification particularly the abstract; pages 4-40; Examples; see SCORE).

Therefore, the teachings of Mazur et al. anticipate the presently claimed invention.

Arguments and Response

14. Applicants' arguments directed to the rejection under 35 USC 102 (e) as being anticipated by Mazur et al. for claims 74 and 78 were considered but are not persuasive for the following reasons.

Applicants contend that Mazur et al. teach keto-piperazine compounds and only refer to the presently claimed trisubstituted piperazines (see category M on page 34) generically and do not teach how to prepare compounds of this type.

Applicants' arguments are not convincing since the teachings of Mazur et al. anticipate the compounds of the instant claims. As applicants admit on the record, Mazur et al. teach

compounds that read on the presently claimed compounds (please refer to the entire specification particularly page 34). In addition, the general methods of making peptidomimetics and more specifically peptidomimetics for MC receptors are known in the art (see Hruby et al., 1997, Current Opinion in Chemical Biology, 1: 114-119; Holder et al., 2004, Medicinal Research Reviews, 24(3): 325-356; and Jones et al., 2003, Current Opinion in Pharmacology, 3: 530-543).

Conclusion

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Future Communications

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AMBER D. STEELE whose telephone number is (571)272-5538. The examiner can normally be reached on Monday through Friday 9:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Low can be reached on 571-272-0951. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Amber D. Steele/
Primary Examiner, Art Unit 1639

July 31, 2009